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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590

05/24/2010

Susan M. Donahue
Rockwell Automation, 704-P, IP Department
1201 South 2nd Street
Milwaukee, WI 53204

EXAMINER

ORTIZ RODRIGUEZ, CARLOS R

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 05/24/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/674,966

09/30/2003

Frederick M. Discenzo

01AB175C/ALBRP246USC

4946

TITLE OF INVENTION: SYSTEM AND METHOD FOR DYNAMIC MULTI-OBJECTIVE OPTIMIZATION OF MACHINE SELECTION, INTEGRATION AND UTILIZATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	08/24/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

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A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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05/24/2010

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Susan M. Donahue
Rockwell Automation, 704-P, IP Department
1201 South 2nd Street
Milwaukee, WI 53204

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(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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TITLE OF INVENTION: SYSTEM AND METHOD FOR DYNAMIC MULTI-OBJECTIVE OPTIMIZATION OF MACHINE SELECTION, INTEGRATION AND UTILIZATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional

NO

\$1510

\$300

\$0

\$1810

08/24/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
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ORTIZ RODRIGUEZ, CARLOS R

2123

700-028000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/674,966	09/30/2003	Frederick M. Discenzo	01AB175C/ALBRP246USC	4946

7590 05/24/2010

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EXAMINER

ORTIZ RODRIGUEZ, CARLOS R

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 05/24/2010

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 96 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 96 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/674,966	DISCENZO ET AL.	
	Examiner	Art Unit	
	CARLOS ORTIZ RODRIGUEZ	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 04/23/2010.
2. ☒ The allowed claim(s) is/are 1,3-5,7-10,12,15-17,19-22,24-29,31-35,39-46,50,52 and 53.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

1. Claims 1, 3-5, 7-10, 12, 15-17, 19-22, 24-29, 31-35, 39-46, 50 and 52-53 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/25/2010 has been entered.

Terminal Disclaimer

3. The terminal disclaimer filed on 04/23/2010 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,847,854, U.S. Patent No. 7,050,873, and U.S. Patent No. 7,143,016 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Examiner's Amendment

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided

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by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

5. Authorization for this examiner's amendment was given during a telephone interview with Brian Steed on 05/19/2010.

The application has been amended as follows:

6. Claims 2, 6, 13, 23, 30 and 51 are cancelled.

7. Claim 1 has been replaced with the following:

- - A system that optimizes industrial business operations, comprising:

a processor;

a memory communicatively coupled to the processor, the memory having stored therein computer-executable instructions configured to implement the industrial business operations including:

a component that receives data relating to a plurality of machines that are part of the industrial business operations;

a correlation engine that analyzes the data and correlates efficiency information for at least two of the plurality of machines to derive correlated system efficiency information;

an optimization component that employs the correlated system efficiency information to select an operating point within an allowable range of operation about a system setpoint and controls the industrial business operations in part according to the operating point, the operating point selected to optimize a total energy utilization of the plurality of machines based on the correlated system efficiency information; and

a prognostics engine that generates an inference of a future state of a subset of operations for the plurality of machines based in part on the received data;

wherein at least a subset of the plurality of machines comprise respective prognostic components that share state information with one another; and

wherein the prognostic engine and the prognostic components collaborate to control an operating rate of at least a subset of the plurality of machines. - -

8. Claim 3 has been replaced with the following:

- - The system of claim 1, the prognostic engine comprising a classifier. - -

9. Claim 4 has been replaced with the following:

- - The system of claim 1, wherein the state information comprises state information relating to at least one of historical, current, or predicted operating states of the plurality of machines. - -

10. Claim 8 has been replaced with the following:

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- - The system of claim 1, at least a subset of the plurality of machines are respectively represented by intelligent agents that collaborate to determine at least one control modification of the plurality of machines that optimizes the total energy utilization for the plurality of machines. - -

11. Claim 10 has been replaced with the following:

- - A method that optimizes assets in an industrial automation system, comprising:

employing a processor executing computer executable instructions stored on a computer-readable storage medium to implement the following acts:

receiving and analyzing in real-time data relating to diagnoses and prognoses of operational aspects of a subset of machines that are part of the industrial automation system;

modeling and representing interactions of the subset of machines;

modifying asset utilization in the industrial automation system as a function of the analyzed diagnostic and prognostic machine data;

correlating efficiency information for at least two machines within the subset of machines to derive correlated system efficiency information;

selecting an operating point within an allowable range of operation about a system setpoint, the operating point selected to optimize a total cost of energy utilization of the subset of machines according to the correlated system efficiency information;

controlling at least one machine within the subset of machines according to the operating point;

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predicting a failure of at least one identified component of the subset of machines based on the correlated system efficiency information;

automatically ordering a replacement for the identified component via the Internet in response to the predicting;

selecting, in response to predicting, a new operating point calculated to maintain continued operation of the identified component until at least an anticipated arrival time of the replacement component; and

controlling at least one machine within the subset of machines according to the new operating point. - -

12. Claim 15 has been replaced with the following:

- - The method of claim 10, wherein controlling the at least one machine within the subset of machines according to the operating point comprises providing a motor speed signal to a motor drive according to the operating point. - -

13. Claim 20 has been replaced with the following:

- - The method of claim 10, further comprising obtaining at least a portion of one of the efficiency information, the allowable range, or the setpoint from prior operation of the industrial automation system. - -

14. Claim 21 has been replaced with the following:

- - The method of claim 10, wherein the selecting the operating point comprises:

correlating component performance information associated with at least two components in the industrial automation system in order to derive correlated system performance information; and

selecting the operating point within the allowable range of operation according to the correlated system performance information. - -

15. Claim 22 has been replaced with the following:

- - The method of claim 21, wherein the controlling at least one machine within the subset of machines according to the operating point comprises providing the operating point to a controller associated with the industrial automation system. - -

16. Claim 29 has been replaced with the following:

- - The method of claim 21, wherein the correlating the component performance information comprises correlating efficiency information related to at least two of a motor, a pump, or a motor drive to derive cost information related to the industrial automation system operational cost per unit of fluid pumped through the pump. - -

17. Claim 31 has been replaced with the following:

- - The method of claim 29, further comprising selecting the operating point to further optimize a cost of operation associated with at least one of the motor, the pump, or the motor drive based on the correlated system efficiency information. - -

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18. Claim 33 has been replaced with the following:

- - A system that optimizes assets in an industrial automation system, comprising:

processing means for processing data from a memory having stored therein computer-executable instructions configured to implement the industrial business operations including:

means for receiving and analyzing in real-time data relating to prognoses of operational aspects of a plurality of machines that are part of the industrial automation system;

means for modeling and representing interactions between the plurality of machines;

means for regulating a subset of the plurality of machines as a function of analyzed diagnostic and prognostic machine data;

means for correlating efficiency information for at least two of the plurality of machines in order to derive correlated system efficiency information;

means for selecting an operating point within an allowable range of operation about a system setpoint according to the correlated system efficiency information, the operating point selected to optimize a total energy utilization of the industrial automation system;

means for controlling at least one of the plurality of machines according to the operating point;

means for predicting a failure of at least one identified component of the subset of the plurality of machines based on the correlated system efficiency information;

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means for automatically ordering a replacement for the identified component via the Internet in response to predicting the failure;

means for selecting, in response to predicting the failure, a new operating point calculated to maintain continued operation of the identified component until at least an anticipated arrival time of the replacement component; and
controlling at least one of the plurality of machines according to the new operating point. - -

19. Claim 34 has been replaced with the following:

- - The system of claim 33 further comprising means for inferring future states of the subset of the plurality of machines. - -

20. Claim 39 has been replaced with the following:

- - An industrial automation control method, comprising:

employing a processor executing computer executable instructions stored on a computer-readable storage medium to implement the following acts:

receiving data relating to a plurality of machines that are part of an industrial business operations;

analyzing the data and correlating efficiency information for at least two of the plurality of the plurality of machines to derive correlated system efficiency information;

selecting an operating point within an allowable range of operation about a system setpoint based on the correlated system efficiency information, the operating

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point selected to optimize a total energy utilization of the plurality of machines given the correlated system efficiency information;

controlling the industrial business operations in accordance with the operating point;

employing a prognostics engine to infer a future state of a subset of operations for the plurality of machines based in part on the received data;

executing prognostic components on at least a subset of the plurality of machines, the prognostic components sharing state information with one another; and

controlling an operating rate of at least a subset of the plurality of machines based on a collaboration between the prognostic engine and the prognostic components. - -

21. Claim 40 has been replaced with the following:

- - A computer-implemented method for ordering parts and optimizing assets in an industrial automation system comprising:

employing a processor executing computer executable instructions stored on a computer readable storage medium to implement the following acts:

correlating component performance information for at least two devices operating within the industrial automation system;

deriving correlated component efficiency information based on the correlating;

inferring a failure period for at least one device operating within the industrial automation system machine based on the correlated component efficiency information;

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automatically ordering a replacement component for the at least one device prior to an inferred failure period;

selecting, in response to the inferring, an operating point calculated to maintain continued operation of the at least one device until at least an anticipated arrival time of the replacement component and to optimize energy utilization by the at least one device;

controlling at least one machine in the industrial automation system according to the operating point;

detecting an updated anticipated arrival time for the replacement component;

selecting, in response to the detecting, a new operating point calculated to maintain continued operation of at least one part until at least the updated anticipated arrival time; and

controlling the at least one machine in the industrial automation system according to the new operating point. - -

22. Claim 44 has been replaced with the following:

- - A system that facilitates optimizing industrial business operations, comprising:

a processor;

a memory communicatively coupled to the processor, the memory having stored therein computer-executable instructions configured to implement the industrial business operations including:

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a component that receives data relating to a state of a subset of machines that are part of the industrial business operations and correlates efficiency information for at least two machines within the subset of machines to derive correlated system efficiency information;

a prognostics engine that infers a future state of at least a subset of the industrial business operations based in part on the received data; and

an optimization component that selects an operating point within an allowable range of operation about a system set point based on the correlated system efficiency information and controls at least one machine within the subset of machines according to the operating point, the operating point selected to optimize a total energy utilization of the industrial business operations;

wherein the subset of machines comprise respective prognostic components that share state information with one another; and

wherein the prognostic engine and the prognostic components collaborate to control an operating rate of at least one machine within the subset of machines. - -

Allowable Subject Matter

23. Claims 1, 3-5, 7-10, 12, 15-17, 19-22, 24-29, 31-35, 39-46, 50 and 52-53 are allowed.

24. The following is an examiner's statement of reasons for allowance:

While Reid et al. (U.S. Patent No. 6,298,308) discloses modifying asset utilization in an industrial automation system based at least in part as a function of analyzed diagnostic and prognostic machine data, Hays et al. (U.S. Patent No. 6,330,525) discloses controlling at least one machine according to a desired operating point, Soneda et al. (U.S. Patent No. 6,619,111) discloses correlating component performance information associated with an industrial automation system in a machine comprising a motor efficiency information, a pump efficiency information, and a motor drive efficiency information in order to derive correlated process performance information; and selecting a desired operating point as an optimum performance point within a allowable range of operation according to the correlated process performance information, and Eryurek et al. (U.S. Patent No. 6,795,798) discloses automatically receiving and analyzing data relating to a prognosis of a future state of an industrial automation system, none of these references taken either alone or in combination with the prior art of record disclose a system/method for optimizing industrial operations, including:

(Claim 1) “an optimization component that employs the correlated system efficiency information to select an operating point within an allowable range of operation about a system setpoint and controls the industrial business operations in part according to the operating point, the operating point selected to optimize a total energy utilization of the plurality of machines based on the correlated system efficiency information; wherein at least a subset of the plurality of machines comprise respective prognostic components that share state information with one another; and

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wherein the prognostic engine and the prognostic components collaborate to control an operating rate of at least a subset of the plurality of machines”,

(Claim 10) “selecting an operating point within an allowable range of operation about a system setpoint, the operating point selected to optimize a total cost of energy utilization of the subset of machines according to the correlated system efficiency information; controlling at least one machine within the subset of machines according to the operating point; predicting a failure of at least one identified component of the subset of machines based on the correlated system efficiency information; automatically ordering a replacement for the identified component via the Internet in response to the predicting; selecting, in response to predicting, a new operating point calculated to maintain continued operation of the identified component until at least an anticipated arrival time of the replacement component; and controlling at least one machine within the subset of machines according to the new operating point”,

(Claim 33) “means for selecting an operating point within an allowable range of operation about a system setpoint according to the correlated system efficiency information, the operating point selected to optimize a total energy utilization of the industrial automation system; means for controlling at least one of the plurality of machines according to the operating point; means for predicting a failure of at least one identified component of the subset of the plurality of machines based on the correlated system efficiency information; means for automatically ordering a replacement for the identified component via the Internet in response to predicting the failure; means for selecting, in response to predicting the failure, a new operating point calculated to

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maintain continued operation of the identified component until at least an anticipated arrival time of the replacement component; and controlling at least one of the plurality of machines according to the new operating point”,

(Claim 39) “selecting an operating point within an allowable range of operation about a system setpoint based on the correlated system efficiency information, the operating point selected to optimize a total energy utilization of the plurality of machines given the correlated system efficiency information; controlling the industrial business operations in accordance with the operating point; executing prognostic components on at least a subset of the plurality of machines, the prognostic components sharing state information with one another; and controlling an operating rate of at least a subset of the plurality of machines based on a collaboration between the prognostic engine and the prognostic components”,

(Claim 40) “selecting, in response to the inferring, an operating point calculated to maintain continued operation of the at least one device until at least an anticipated arrival time of the replacement component and to optimize energy utilization by the at least one device; controlling at least one machine in the industrial automation system according to the operating point; detecting an updated anticipated arrival time for the replacement component; selecting, in response to the detecting, a new operating point calculated to maintain continued operation of at least one part until at least the updated anticipated arrival time; and controlling the at least one machine in the industrial automation system according to the new operating point”, and

(Claim 44) “an optimization component that selects an operating point within an allowable range of operation about a system set point based on the correlated system efficiency information and controls at least one machine within the subset of machines according to the operating point, the operating point selected to optimize a total energy utilization of the industrial business operations; wherein the subset of machines comprise respective prognostic components that share state information with one another; and wherein the prognostic engine and the prognostic components collaborate to control an operating rate of at least one machine within the subset of machines”,

in combination with the remaining elements and features of the claimed invention. It is for these reasons that the applicant’s invention defines over the prior art of record.

Conclusion

25. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance”.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is 571-272-3766. The examiner can normally be reached on Mon-Fri 10:00 am- 6:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Patent Examiner
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May 24, 2010

/Paul L Rodriguez/
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